AMENDMENTS TO THE CLAIMS:

Please cancel claim 36 without prejudice or disclaimer, and amend the claims as follows:

1. (Currently Amended) A method of forming a semiconductor device, comprising:

implanting, on a substrate, a dopant to form a dopant extension region;

implanting at least one species, on a substrate to form a region surrounding at least a portion of said dopant extension region; and

annealing said substrate, said at least one species retarding a diffusion of said dopant during said annealing of said substrate,

wherein said substrate comprises a graded SiGe layer having a crystal lattice which is more relaxed in a direction extending away from a top surface of the substrate and a concentration of Ge that increases in a direction extending away from the top surface of the substrate.

2. (Original) The method of claim 1, wherein a dosage of said at least one species exceeds a preamorphization threshold of said substrate.

3. (Previously Presented) The method of claim 1, wherein a dosage of said at least one species comprises at least about 3 times the preamorphization threshold of said substrate.

4. (Previously Presented) The method of claim 1, wherein a dosage of said at least one species comprises at least about 5 times the preamorphization threshold of said substrate.

5. (Previously Presented) The method of claim 1, wherein a dosage of said at least one species comprises at least about 7 times the preamorphization threshold of said substrate.

6. (Original) The method of claim 1, wherein said at least one species damages a junction formed by the dopant.

7. (Previously Presented) The method of claim 6, wherein said junction comprises a depth of no more than about 30 nm.

8. (Previously Presented) The method of claim 6, wherein said junction comprises a slope which is at least about 5 nm per decade of change in concentration of said dopant.

9. (Original) The method of claim 1, wherein said substrate comprises at least one of silicon, SiGe, strained Si and strained SiGe.

10. (Original) The method of claim 1, wherein said at least one species comprises at least one of Xe, Ge, Si, Ar, Kr, Ne, He and N.

11. (Original) The method of claim 1, wherein said dopant comprises at least one of As, P, and Sb.

12. (Original) The method of claim 1, wherein said dopant is implanted at a time which is one of prior to said implanting said species, and after said implanting said species.

13. (Previously Presented) The method of claim 1, further comprising:

forming a source region and a drain region in said substrate; and

forming a metal silicide contact over said source region and said drain region.

14. (Previously Presented) The method of claim 13, wherein said source region and said drain region are formed at a time which is prior to said implanting of said dopant.

15. (Previously Presented) The method of claim 13, wherein said source region and said drain region are formed at a time which is after said implanting of said dopant.

16. (Original) The method of claim 14, wherein said dopant is implanted at a time which is one of prior to said implanting said species, and after said implanting said species.

17. (Original) The method of claim 15, wherein said dopant is implanted at a time which is one of prior to said implanting said species, and after said implanting said species.

18. (Original) The method of claim 1, wherein said species is implanted at least about 10 to about 20 nm deeper than said dopant.

19. (Previously Presented) The method of claim 1, wherein said species has an implantation energy sufficient to create said region surrounding at least a portion of said dopant extension region in said substrate.

20. (Previously Presented) The method of claim 1, wherein said species has a first implantation energy sufficient to create said region surrounding at least a portion of said dopant extension region in said substrate, and a second implantation energy sufficient to create a region surrounding at least a portion of a source/drain region in said substrate.

21. (Previously Presented) The method of claim 1, wherein said species has an implantation energy sufficient to create a region surrounding at least a portion of said extension region and at least a portion of a source/drain region in said substrate.

22. (Original) The method of claim 1, wherein said annealing said substrate is performed after said implanting said dopant and said implanting said species.

23. (Previously Presented) A method of forming a semiconductor device, comprising:

implanting, on a substrate, a dopant and at least one species; and

annealing said substrate, said at least one species retarding a diffusion of said dopant during said annealing of said substrate,

wherein said implanting said dopant is performed after said implanting said at least one species, said method further comprising:

annealing said substrate after said implanting said species and before said implanting said dopant.

24. (Currently Amended) A method of forming a shallow and abrupt junction in a semiconductor substrate, comprising:

implanting a dopant on a substrate to form a dopant extension region;

implanting at least one species in a vicinity of said dopant in a dosage which far exceeds a preamorphization threshold of said substrate to form a region surrounding at least a portion of said dopant extension region; and

annealing said substrate, said at least one species retarding a diffusion of said dopant during said annealing of said substrate, such that a shallow and abrupt junction is formed,

wherein said substrate comprises a graded SiGe layer having a crystal lattice which is more relaxed in a direction extending away from a top surface of the substrate and a concentration of Ge that increases in a direction extending away from the top surface of the substrate.

25. (Currently Amended) A semiconductor device, comprising:

a semiconductor substrate;

a dopant formed in said substrate, to define a junction; and

a species formed in a vicinity of said junction and in a concentration which far exceeds a preamorphization threshold of said substrate to form a region surrounding at least a portion of said junction,

wherein said substrate comprises a graded SiGe layer having a crystal lattice which is more relaxed in a direction extending away from a top surface of the substrate and a concentration of Ge that increases in a direction extending away from the top surface of the substrate.

26. (Previously Presented) The device of claim 25, further comprising:

a source region and a drain region formed adjacent said dopant and said species;

a channel formed between said source region and said drain region;

a gate formed over said channel; and

a contact formed over said source region and said drain region.

27. (Canceled)

28. (Previously Presented) The device of claim 26, wherein a region of said species surrounds at least a portion of said junction, and at least a portion of said source region and said drain region.

29. (Previously Presented) The device of claim 25, wherein said junction comprises a depth of no more than about 30 nm, and a slope which is at least about 5 nm per decade of change in concentration of dopant.

30. (Original) The device of claim 25, wherein said substrate comprises one of silicon, SiGe, and strained Si.

31. (Original) The device of claim 30, wherein said SiGe comprises one of relaxed SiGe and strained SiGe.

32. (Original) The device of claim 31, wherein said strained SiGe comprises SiGe under one of a compressive strain and a tensile strain.

33. (Previously Presented) The method of claim 1, wherein said substrate comprises at least one of SiGe, strained Si, strained SiGe and relaxed SiGe.

34. (Previously Presented) The method of claim 1, wherein said at least one species comprises at least one of Xe, Kr, Ne, He and N.

35. (Currently Amended) The device ~~method~~ of claim 25, wherein said at least one species comprises at least one of Xe, Kr, He and N.

36. (Canceled)

37. (Previously Presented) The method of claim 1, wherein said at least one species comprises a material that is different from said dopant.

38. (Previously Presented) The method of claim 1, further comprising:

forming a strained silicon channel adjacent said dopant extension region.

39. (Previously Presented) The method according to claim 1, wherein said region surrounding at least a portion of said dopant extension region is formed under said dopant extension region and comprises a lip portion which extends along at least one side of said dopant extension region.

40. (Previously Presented) The method according to claim 1, further comprising:

forming a disposable spacer to mask a region where said dopant is implanted.

41. (Previously Presented) The method of claim 1, wherein said at least one species comprises at least one of Xe, Ar, and Kr.

42. (Previously Presented) The method of claim 1, wherein said dopant comprises As.

43. (Previously Presented) The method of claim 1, wherein said at least one species comprises at least one of Xe, Ar, and Kr, and

wherein said dopant comprises As.

44. (Previously Presented) The method of claim 1, wherein said at least one species comprises Xe, and

wherein said dopant comprises As.